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NRC·CNRC

2010-11
Estimates

Part III: Report on Plans and Priorities (RPP)

National Research Council Canada

The Honourable Tony Clement
Minister of Industry

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Minister's Message

Our government is committed to positioning Canada to exit the current downturn quickly and emerge stronger and more competitive in the global economy. In doing so, Industry Canada and its Portfolio partners will continue to play their key roles in increasing the country's capacity to create jobs and economic growth — for next year and the next decade.

While the recession originated beyond our borders, it had real consequences for Canadians and Canadian business. And despite improving conditions, there is work to be done. In 2010, a major focus will be completing the stimulus measures of Canada's Economic Action Plan. Introduced in Budget 2009, the Plan's full effect will be felt in 2010–11, and its measures will help solidify the recovery.

Over this period, Industry Canada and its Portfolio partners will work with industries and sectors hit hardest by the recession. Initiatives will include activities to boost community economic development and to extend broadband infrastructure to underserved or unserved areas across the country. To build on the momentum gained through our past investments in science and technology, significant effort will be directed to shaping the knowledge-based economy.

Industry Canada will also focus on supporting business and industry to capitalize on emerging opportunities at home and abroad. Getting our economic frameworks right, through forward-looking policies, is central to ensuring Canada's place in the global marketplace. We remain committed to two-way trade and investment, which raises our capacity to create jobs and economic growth and provides for sustainable prosperity.

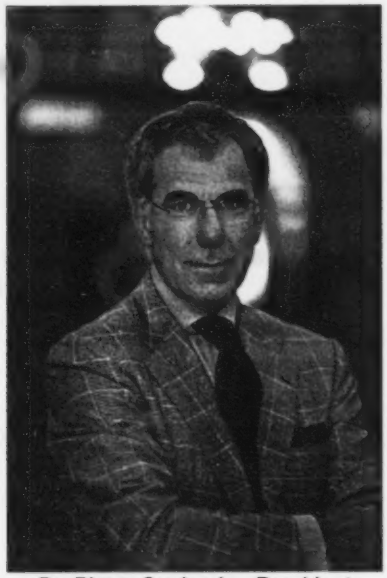
In 2010–11, National Research Council Canada (NRC) will play a critical role in sustaining the innovation activity of small and medium-sized businesses. NRC's aim is to bring timely solutions to market in areas of national importance: clean energy, health and wellness, and the environment. NRC will continue to partner with Canadian firms to deliver tangible, market-oriented results in high-impact and emerging industry sectors, such as the automotive sector.

I will work with my colleagues, the private sector and other governments to advance the recovery and build the foundation for a strong, competitive economy.

It is my pleasure to present this year's *Report on Plans and Priorities* for the National Research Council.

Tony Clement
Minister of Industry

President's Message



Dr. Pierre Coulombe, President

The National Research Council (NRC) is the Government of Canada's premier organization for science, technology and innovation, and a key player in the development of Canada's science and technology (S&T) infrastructure. Through its unique multidisciplinary research and development (R&D), integrated S&T solutions to market, industry support, and technology commercialization, NRC is a substantial contributor to the improvement of the social and economic well-being of all Canadians.

As Canada's largest federal research body, NRC is a critical contributor to the federal S&T Strategy. NRC focuses its research and competencies on addressing three national priority areas – health and wellness, sustainable energy and the environment – as well as in key industrial sectors of the economy where NRC can make the most significant contribution for Canadians.

NRC creates value for Canada by transferring technology and knowledge to industry, championing regional technology clusters, securing access to global research networks and facilities, and enhancing opportunities for Canadian firms and technology products at home and abroad. Canadian companies and communities from coast-to-coast benefit from NRC's research excellence, state-of-the-art laboratories and commercialization capacity.

It is with pleasure and pride that I present our 2010-2011 Report on Plans and Priorities. NRC's unique assets - multidisciplinary expertise, strong regional presence, and emerging innovative partnership models - will make a strong contribution to Canada's economic growth for years to come.

Section I – Overview

1.1 Summary Information

1.1.1 Raison d'être

NRC is one of the nation's leading resources to help S&T in Canada keep pace with the changing innovation landscape, with a focus on improving socio-economic benefits for Canadians. With a presence in every province, NRC has a strong national foundation along with international linkages to help Canada remain competitive in the transitioning global economy. NRC's expertise and unique contributions strive to both generate and move ideas to the marketplace by: undertaking R&D in areas critical to Canada's future; fostering industrial and community innovation and growth through technology and industry support; and providing, maintaining and advancing national infrastructure and information for the scientific and industrial community to help push innovation forward and keep Canada at the cutting-edge. NRC's approach is directly aligned to the Government of Canada's S&T Strategy and is underpinned by four key principles: excellence in research, focus on priorities for the short and long term, strong partnerships, and enhanced accountability.

1.1.2 NRC Mandate

Under the *National Research Council Act*, NRC's authorities include:

- Undertaking, assisting or promoting scientific and industrial research in fields of importance to Canada;
- Establishing, operating and maintaining a national science library;
- Publishing and selling or otherwise distributing such scientific and technical information as the Council deems necessary;
- Investigating standards and methods of measurement;
- Working on the standardization and certification of scientific and technical apparatus and instruments and materials used or usable by Canadian industry;
- Operating and administering any astronomical observatories established or maintained by the Government of Canada;
- Administering NRC's research and development activities, including grants and contributions used to support a number of international activities; and
- Providing vital scientific and technological services to the research and industrial communities.

1.1.3 NRC Accountability Framework

NRC is a departmental corporation of the Government of Canada, reporting to Parliament through the Minister of Industry. NRC works in partnership with members of the Industry Portfolio to leverage complementary resources to promote the innovation of firms, to exploit synergies in key areas of S&T, to promote the growth of small and medium-sized firms (SMEs), and to contribute to the economic growth of Canadian communities. NRC Council provides independent strategic direction and advice to the President and reviews organizational performance. The President provides leadership and strategic management and is responsible for the achievement of NRC's long-range goals and plans within the guidance of the NRC Council. Each of six Vice Presidents is responsible for a portfolio of Program Activities composed of research institutes, initiatives, centres and/or a corporate branch. Beneath senior management, 24 Directors General and various committees are responsible for executing against plans and priorities to ensure successful achievement of objectives.

1.1.4 NRC Strategic Outcomes and 2010-11 Program Activity Architecture (PAA)

NRC's aim is to create a sustainable advantage for Canadians through S&T leadership, which will contribute to improved economic competitiveness and social betterment for our nation. Through synergistic and complementary relationships with industry, government and academia, NRC works to align the strengths and critical mass required to achieve four of Canada's Strategic Outcomes: Strong economic growth; healthy Canadians; a clean and healthy environment; and an innovative and knowledge-based economy. NRC's Program Activities directly support the delivery of NRC's Strategic Outcomes, which in turn, are aligned to deliver against the above-mentioned federal commitments. To better reflect this alignment, NRC's PAA was revised to highlight our pursuit to translate discoveries into technology-driven products and services to help Canadian industry be more competitive in the global marketplace and to address enduring challenges in substantial national and global issues. The approved 2010-11 NRC PAA structure, shown below, represents how activities are organized to achieve these desired results.

Canadian Strategic Outcome	NRC Strategic Outcome	NRC Program Activity[1]	NRC Sub-Activity
Strong Economic Growth	Advancements in innovative technologies and increased innovation capacity in targeted Canadian industries and national priority areas	Manufacturing Technologies	• Aerospace Research • Construction Research and Support • Manufacturing and Materials Research • Surface Transportation Technology
		Information and Communications Technologies and Emerging Technologies	• Semiconductor Based Technology Research • Information Technology Research • Nanotechnology Research • Molecular Sciences Research
		Industrial Research Assistance	
Healthy Canadians		Health and Life Science Technologies	• Health and Environmental Biotechnology Research • Age-Related and Infectious Disease Research • Medical Diagnostic Technology Research • Marine Biosciences and Nutrisciences Research • Plant Biotechnology Research • Genomics and Health Technology
Clean and Healthy Environment		Energy and Environmental Technologies	• Ocean Technology Research • Sustainable Energy Technologies and Environmental Monitoring Research • Fuel Cells Technology Research • Hydraulics Technology Research
Innovative and Knowledge-Based Economy	Canadians have access to research and development information and infrastructure	National Science and Technology Infrastructure	• National Measurement Standards • Canadian Astronomical Observatories • Facility for Sub-Atomic Research TRIUMF • Canadian Neutron Beam Centre
		Scientific, Technical and Medical Information	

[1] Internal Services not shown.

The table below represents a crosswalk between NRC's 2009-10 and 2010-11 PAAs.

Crosswalk between NRC's 2009-10 PAA and 2010-11 PAA[2]

2010-11 Net Planned Spending[3] ($ millions)							
2010-11 PAA / 2009-10 PAA	Manufacturing Technologies	ICT and Emerging Technologies	Industrial Research Assistance	Health and Life Science Technologies	Energy and Environmental Technologies	National Science and Technology Infrastructure	Scientific, Technical and Medical Information
Research and Development	148.8	57.9		132.1	36.4	64.2	
Technology and Industry Support			266.0				43.6
Total	148.8	57.9	266.0	132.1	36.4	64.2	43.6

1.2 Planning Summary

1.2.1 Financial Resources

Financial Resources	2010-11	2011-12	2012-13
($ millions)	749.0[4]	610.2[5]	606.3

Except where noted otherwise, all financial results are reported on a cash accounting basis for historical comparability.

1.2.2 Human Resources

Human Resources	2010-11	2011-12	2012-13
Full-Time Equivalents (FTEs)[6]	3,675	3,511	3,465

1.2.3 Planning Summary by Strategic Outcome

NRC Strategic Outcome 1: Advancements in innovative technologies and increased innovation capacity in targeted Canadian industries and national priority areas	
Performance Indicator(s)	**Target(s)**
Average incremental number of new and improved client products as a result of NRC's R&D activities compared to non-clients	0.6 by March 2012
Average incremental client R&D expenditures as a result of NRC's R&D activities compared to non-clients	$75,000 by March 2012
Average incremental client R&D full-time equivalents employed as a result of NRC's R&D activities compared to non-clients	1.2 by March 2012

[2] Figures have been rounded to the nearest millions of dollars. Due to rounding, figures may not add to totals indicated.
[3] Planned spending reflects best estimates of spending to year end.
[4] Includes $112.82 million of program and infrastructure stimulus funding from Canada's Economic Action Plan.
[5] Excluding stimulus funding, the difference between FY10-11 to FY11-12 is approximately $26 million. This difference is largely related to reductions in forecasted spending as a result of 2008 Program Review and collective bargaining.
[6] All FTEs herein are calculated based on average salary.

Program Activity	Forecast Spending ($ millions)	Planned Spending ($ millions)			Alignment to Government of Canada Outcomes
	2009-10	2010-11	2011-12	2012-13	
Manufacturing Technologies	126.6	115.0	111.0	110.0	Strong Economic Growth
ICT and Emerging Technologies	50.4	44.8	42.5	41.9	Strong Economic Growth
Industrial Research Assistance	277.9[7]	237.6[8]	134.7	134.0	Strong Economic Growth
Health and Life Sciences Technologies	138.6	102.3	105.1	104.4	Healthy Canadians
Energy and Environmental Technologies	31.6	28.2	27.1	26.8	A Clean and Healthy Environment
Total	**625.1**	**527.9**	**420.4**	**417.1**	

NRC Strategic Outcome 2: Canadians have access to research and development information and infrastructure

Performance Indicator(s)	Target(s)
Proportion of surveyed S&T infrastructure users who report positively on the value of the NRC infrastructure used	85% by March 2012

Program Activity	Forecast Spending ($ millions)	Planned Spending ($ millions)			Alignment to Government of Canada Outcomes
	2009-10	2010-11	2011-12	2012-13	
National Science and Technology Infrastructure	51.8	49.7	47.6	47.2	An Innovative and Knowledge-based Economy
Scientific, Technical and Medical Information	43.3	39.0	28.1	28.0	An Innovative and Knowledge-based Economy
Total	**95.1**	**88.7**	**75.7**	**75.2**	

Program Activity	Forecast Spending ($ millions)	Planned Spending ($ millions)			Alignment to Government of Canada Outcomes
	2009-10	2010-11	2011-12	2012-13	
Internal Services	152.3	132.3[9]	114.1	114.0	N/A

1.2.4 Contribution of Priorities to Strategic Outcomes

The Government of Canada recognizes the far-reaching implications of innovation and that Canada can and must do more to turn ideas into solutions that address substantial issues such as a cleaner environment and to improve our economic competitiveness. As a result, the government developed a S&T

[7] Includes $127.5 million of program stimulus funding from Canada's Economic Action Plan.
[8] Includes $100.0 million of program stimulus funding from Canada's Economic Action Plan.
[9] Includes $12.82 million of infrastructure stimulus funding from Canada's Economic Action Plan.

strategy, *Mobilizing Science and Technology to Canada's Advantage*, that lays out a plan to develop three distinct Canadian advantages: an Entrepreneurial Advantage that encourages firms to be innovators; a Knowledge Advantage that puts Canadians at the forefront of research and discovery; and a People Advantage that helps build the best educated, most skilled and most flexible workforce. As Canada's largest federal research body, NRC plays a key role under each Advantage and works to contribute to successful progress against the federal S&T Strategy.

- NRC supports Canada's Entrepreneurial Advantage by focusing on solutions-oriented R&D to introduce new products and processes to the marketplace and translate technologies into industrial applications for growth opportunities for SMEs and industrial sectors; by providing valuable support, advice and financial assistance to SMEs through NRC's Industrial Research Assistance Program (NRC-IRAP); and by working with academia, government and industry in communities to build and grow regional technology clusters that accelerate commercialization of specialized technologies and attract highly qualified personnel (HQP) to regions across Canada.
- NRC supports Canada's Knowledge Advantage by focusing programs and resources on key technology areas to increase Canada's innovation capacity. By providing, maintaining, and advancing national infrastructure and scientific information, NRC contributes to leading-edge knowledge generation. Furthermore, NRC conducts R&D that makes NRC one of the world leaders in publication productivity in niche areas when compared against other national science organizations.
- NRC supports Canada's People Advantage by continuing to recruit, retain and train highly qualified personnel for NRC and regional communities across Canada. In addition, NRC works with universities across Canada to train students and supports the placement of budding innovators in SMEs by providing financial support to graduates seeking job experience with innovative firms.

NRC will work to continue to contribute to Canada's leading edge in innovation and make an impact in the needs of today, and anticipate and provide solutions for the challenges of the future. Accordingly, NRC's operational priorities are directly aligned to achieve NRC's Strategic Outcomes, which in turn, are aligned to contribute to the achievement of the government's economic and social objectives in: strong economic growth; health and wellness for Canadians; a clean and healthy environment; and an innovative, knowledge-based economy for Canada.

Operational Priority	Type	Links to Strategic Outcome(s)
1. To contribute to the global competitiveness of key industrial sectors and to support the economic growth and development of communities across Canada.	Ongoing	SO1

Why is this a priority?

- Fuelling Canada's strong economic growth is a priority for the Government of Canada, as evidenced in its federal S&T Strategy and Budget 2009.
- By virtue of its R&D competencies, infrastructure, technology commercialization and industry support, and partnerships, NRC bridges the knowledge generation activities of universities with the economic interests of industry. Given the recent economic stresses on SMEs, NRC plays an even more critical role in helping Canadian innovative activity and contributing to near-term economic recovery and long-term sustainability.

Plans for meeting the priority

- NRC will provide targeted support and services to specific high-impact and emerging industry sectors. These sectors are technology intensive and depend on innovation for their growth and competitiveness, thus benefiting greatly from the resources and knowledge that NRC provides. Key sector activities at NRC will continue to be managed in a comprehensive way to ensure that scientific and engineering capabilities are brought together to work in collaboration with private and public partners to address the immediate and future needs and opportunities required by each sector. Research will be translated into tangible solutions for industry that will help create an attractive business environment, maximize the contribution of all sectors to Canada's economy and support long-term growth. As an example, NRC provides strong research support for the Canadian information and communications technology (ICT) sector by working with SMEs and developing systems and hardware for next generation technologies and applications that will facilitate industry

growth and global competitiveness. For more information, please refer to NRC key sectors.

- NRC will continue to work with university, industry and government to stimulate the growth of community-based clusters of firms specializing in priority technology areas.These clusters will continue to accelerate the commercialization of new technologies, products, processes and services, and build S&T capacity in specific industries and regions across the country. For more information, please refer to NRC technology clusters.
- As part of Canada's Economic Action Plan, the federal Budget 2009 provided $200 million over two years to the NRC Industrial Research Assistance Program Activity (NRC-IRAP). In 2010-11, these funds will continue to be used to temporarily expand advisory and financial services to more SMEs to enable their success.

Operational Priority	Type	Links to Strategic Outcome(s)
2. To support and conduct R&D in areas of national importance such as healthy Canadians, sustainable energy and a clean environment.	Ongoing	SO1

Why is this a priority?

- The federal government recognizes that innovation is the driver behind addressing many of Canada's health, energy and environmental issues. As a result, the federal S&T Strategy commits to establishing and supporting strategic research priorities that will propel solutions forward.
- In support of the federal S&T Strategy, NRC has identified three priority areas (Health & Wellness, Sustainable Energy, and the Environment) where NRC can make unique and compelling contributions to solutions in substantial issues that cannot be solved by any one organization or country alone.

Plans for meeting the priority

- The Health and Life Science Technologies Program Activity will continue to collaborate with academic, government and private sector players to conduct R&D and develop applications and market solutions in such areas as general health and wellness, age-related and infectious diseases, and the prevention, early diagnosis and improved treatment of diseases such as cancer.
- For Sustainable Energy, NRC will continue to collaborate and work towards solutions to reducing energy requirements while finding better, more environmentally friendly ways to meet current needs. Areas that NRC will continue work in are energy efficiency for industrial processes and transportation, renewable energy sources, bioenergy, fuel cells and oil sand development.
- Contaminated effluents treatment, waste management, the battle against global warming, and eco-efficiency all present challenges where innovative, cutting-edge technology solutions are critical for Canada. NRC will continue to develop environmental technologies to contribute to solutions in these challenges such as monitoring air quality, preventing pollution and cleaning up contaminated sites.

Operational Priority	Type	Links to Strategic Outcome(s)
3. To provide integrated support that engages key players across government, academia, and industry.	Ongoing	SO2

Why is this a priority?

- NRC has an integrated, multidisciplinary approach and has identified opportunities where the organization can play a role to address gaps in Canada's S&T ecosystem that limit the nation's capacity to generate and transform new knowledge into real economic value.

Plans for meeting the priority

- NRC will continue to provide integrated S&T infrastructure to support Canadian excellence in R&D (e.g., facilities, equipment, etc). Canada is one of the world leaders in cutting-edge infrastructure and technology platforms. NRC will continue to work with university, industry and government stakeholders in Canadian communities to ensure that Canada's national science and technology facilities are up-to-date and accessible to Canadians in accordance with federally legislated and assigned mandate and/or evolving national needs.
- In response to funding allocated in Budget 2009, NRC will upgrade and enhance existing facilities.

This will strengthen the Canadian economy by enabling scientists to work alongside firms in updated facilities to generate knowledge and commercialize technology. NRC will continue with initiatives funded under Modernizing Federal Laboratories and the Accelerated Federal Contaminated Site Action Plan. Both initiatives will be completed by April 2011.

- NRC remains committed as Canada's national science library and will continue to provide Canada's innovation community with tools and services for accelerated discovery, innovation and commercialization.

Management Priority	Type	Links to Strategic Outcome(s)
To ensure effective program management for a sustainable organization.	Ongoing	SO1 SO2

Why is this a priority?

- Ensuring effective program management will enable NRC to fulfill its purpose of providing "integrated science and technology solutions in areas of importance to Canada".
- NRC must be a sustainable and agile national research and innovation organization for Canada in order to achieve its Strategic Outcomes. NRC is working to ensure that there is clear and consistent corporate direction, and relevant program support to achieve its goals in alignment with federal S&T priorities.

Plans for meeting the priority

- NRC will continue to work on aligning all major internal processes to ensure that all critical factors feed into strategic decision-making.
- NRC will exercise its new integrated planning and performance management process, tools and structures to ensure alignment with priorities, and improved performance reporting of financial and non-financial information for greater efficiency in management and transparency.
- NRC will continue to strengthen its governance and associated accountability processes.
- NRC will focus on HR initiatives to attract and engage talent and build organizational capability.

1.2.5 Risk Analysis

NRC's operating environment is scientific and technical in nature, combined with a supporting infrastructure of corporate and business/entrepreneurial expertise to meet industry needs for technology transfer and commercialization. To be valued as the world's best national organization for research and innovation, as defined by NRC's vision, highly qualified scientific and technical personnel, state-of-the-art research equipment and facilities, and an innovative work environment that supports a network of national and international collaborations are crucial elements, particularly in today's environment of open innovation.

NRC's most recent Corporate Risk Profile for 2009-10 highlighted an increasingly competitive global R&D environment with significant investments by foreign governments into science and technology relative to Canada (e.g., $21.5 billion federal investment in R&D as part of the economic stimulus package in the United States); a mobile R&D workforce that is more and more concentrated in areas outside of North America, such as China and India; and a local and global economy still recovering from the economic downturn (including NRC partners and clients). Some of the highest risks facing NRC relate to: a) funding and financial pressures related to uncertainties around funding renewal for major initiatives, increasing operational costs, and a static core budget; b) increasing competition for HQP which is linked to other high risk areas such as succession planning and leadership development; and c) limited awareness of NRC impacts by some stakeholders.

Looking at the interrelations between the highest risks, NRC's Senior Executive Committee has agreed upon priority areas in the coming year to commit to action. These are issues that most significantly affect other high risks: 1) Strategic Leadership – including the need to continue strengthening decision-making and priority-setting mechanisms and structures; 2) Stakeholder Relationships - including the development and implementation of an effective and targeted communications, marketing and stakeholder relations strategy; and 3) Financial Sustainability – including the implementation of a series of short-term and long-term measures to ensure the success and viability of NRC Program Activities. Senior executive leads have been identified to further develop the details of the action plan around each area to ensure that NRC

can continue to deliver on its operational and management priorities via the most effective program management, while mitigating identified risk areas.

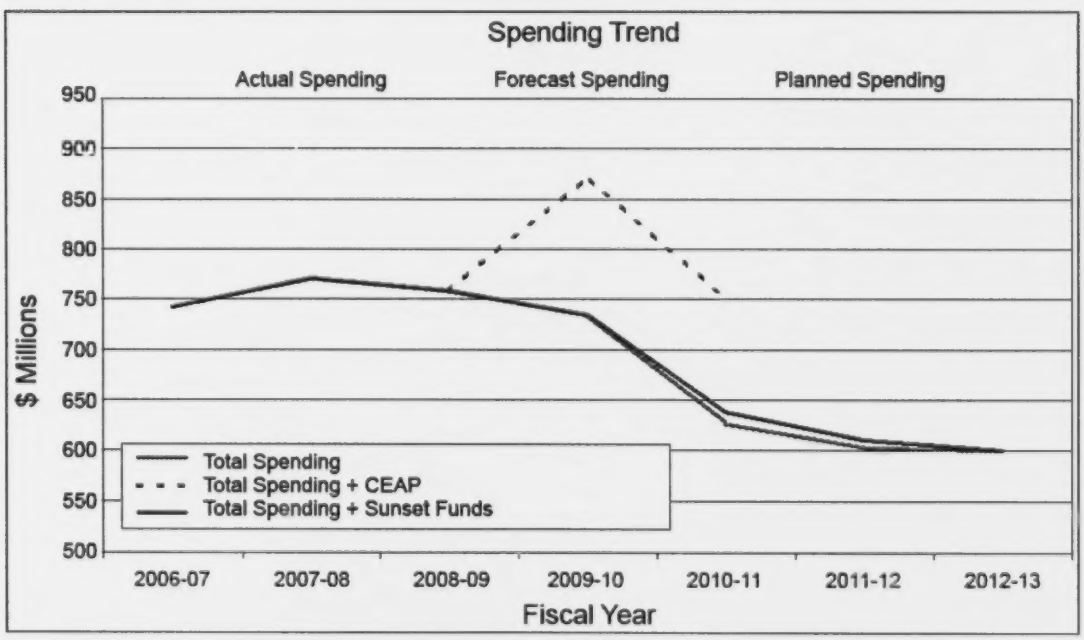
At the same time, the current turbulent environment is creating opportunities where NRC can play a substantial role and accelerate progress against objectives. Some of these relate to: 1) Emerging national issues (for example in the Arctic and sustainable energy) where NRC can leverage its cross-Canada presence and multidisciplinary expertise to help provide solutions; 2) The growing need for innovative partnership models where NRC can leverage its strong regional presence and relationships with local governments/universities/industry; and 3) Economic stresses for SMEs where NRC has a growing recognition and role for the NRC Program Activity, Industrial Research Assistance.

1.2.6 Expenditure Profile

NRC's forecast spending for 2009-10 is $872.7 million. Over the past three years (fiscal years 2006-07 to 2008-09), actual spending has averaged $757.1 million. The increase of $115.6 million (or 15%) over the average spending in fiscal 2009-10 is due primarily to the funding received for Canada's Economic Action Plan. The planned spending for fiscal years 2010-11 to 2012-13, as indicated in the Spending Trend graph, reflects an overall decline in the budget. The decline is due to the sun-setting of the Cluster Initiatives, TRIUMF and a permanent reduction related to 2008 Program Review exercise. NRC is currently seeking renewal of the Cluster Initiatives and TRIUMF and until they are renewed, these items cannot be included in Planned Spending.

Canada's Economic Action Plan:

Budget 2009 allocated funds to NRC's Program Activity, Industrial Research Assistance (NRC-IRAP) to provide temporary expansion of the support, advisory and financial assistance that is provided to SMEs. NRC-IRAP directly received $200 million over two years, plus indirect funding through the Community Adjustment Fund and the Federal Economic Development Agency for Southern Ontario to expand its initiatives for SMEs. This more than doubles the Program's contribution to firms funding and will help companies hire new post-secondary graduates. In addition, NRC received infrastructure stimulus under the Modernizing Federal Laboratories initiative ($19.07 million) to address deferred maintenance issues and to modernize facilities that support research in areas of national importance, and under the Accelerated Federal Contaminated Site Action Plan ($4.84 million) to remediate contaminated areas in an effort to clean up the environment and improve safety. For more information on NRC's planned activities as part of Canada's Economic Action Plan, please refer to Section 2.3.



1.2.7 Voted and Statutory Items

Vote # or Statutory Item (S)	Truncated Vote or Statutory Wording	2009-10 Main Estimates ($ millions)	2010-11 Main Estimates ($ millions)
55	Operating expenditures	397.6	361.3
60	Capital expenditures	42.2	48.1
65	Grants and contributions	140.6	213.0
(S)	Contributions to employee benefits plans	45.7	45.6
(S)	Spending of revenues pursuant to paragraph 5(1)(e) of the *National Research Council Act*	79.0	80.9
Total		705.2	749.0

Note: Due to rounding, figures may not add to total shown.

Budgetary ($ millions)			Loans, Investments and Advances ($ millions)		
2009-10	2010-11	Net Increase (Decrease)	2009-10	2010-11	Net Increase (Decrease)
705.2	749.0	43.8	5.0	5.0	0.0

Section II – Analysis of Program Activities

2.1 NRC Strategic Outcome 1

Advancements in innovative technologies and increased innovation capacity in targeted Canadian industries and national priority areas

The federal S&T Strategy commits to translating discovery into innovative, technology-driven products and services in national priority areas as well as improving the innovation capacity of industry. NRC's Strategic Outcome 1 is aligned to help deliver on these commitments. Long-term and short-term deliverables include: technological solutions to national challenges in health and wellness, sustainable energy and the environment; activities and resources in key sectors of Canadian industry to help SMEs increase their innovation capacity and compete more effectively in world markets; and strengthening Canada's innovation system by increasing technology transfer and commercialization, striking new partnerships with key players, providing technical and financial assistance to those with the potential to lead in a new area of technology, and supporting community-based technology clusters.

For a list of performance indicators for Strategic Outcome 1, please refer to Section 1.2.3.

2.1.1 Program Activity – Manufacturing Technologies

Description: This program performs multidisciplinary research and development in consultation with industry, universities, government departments and other key innovation players to improve the global competitiveness of Canadian industry by transforming knowledge and innovation into real economic value and by transferring technologies into industrial solutions for the marketplace. Companies have coordinated access to NRC's multidisciplinary research expertise and state-of-the art facilities to ensure they are at the leading edge of innovation. This includes a facility that transforms concepts into custom precision mechanical prototypes for research applications.

Program Activity Expected Result: Manufacturing industries in Canada have coordinated access to NRC's multidisciplinary research expertise and state-of-the art facilities to ensure they are at the leading edge of innovation	
Performance Indicator(s)	**Target(s)**
Percentage of surveyed clients who report that NRC's manufacturing technologies research and facilities helped advance their innovation capacity	75% by March 2012

Financial Resources ($ millions)		
2010-11	**2011-12**	**2012-13**
115.0	111.0	110.0

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
852	805	793

Planning Highlights: To remain competitive in today's global market, Canadian manufacturers must reduce costs, improve products and minimize environmental impact. NRC's state-of-the-art facilities and expertise in product design and processes helps Canadian manufacturers address these areas and advances Canadian innovation, which is key to Canada's competitiveness. To address these challenges, this Program Activity plans to provide targeted support and services to high-impact industry sectors such as Automotive, Aerospace, and Construction. By collaborating with industry to develop new products and processes and providing access to NRC's multidisciplinary research expertise and facilities, this Program Activity contributes to the achievement of NRC's operational priority 1 and NRC's Strategic Outcome 1.

The Manufacturing Technologies Program Activity plans to provide Canadian manufacturing industries with technology solutions to address economic, environmental and regulatory challenges. In 2010-11, NRC will focus on three areas to address these challenges of key manufacturing industries for sustained competitiveness: green and lightweight materials; environmental performance, safety and productivity; and support to the creation and growth of companies.

- Over the last few years, Canada's automotive sector has faced severe economic challenges. In 2008-09, automotive, as part of the Canadian manufacturing GDP, dropped from 12% to 9.3 % and direct Canadian employment dropped from 137,500 to 109,000.[10] The current industry structure consists of 5 multinational automakers and 900 Canadian auto part makers (of which the majority are SMEs). NRC's Automotive key sector will play a crucial role in this value chain to help SMEs understand the technology demands of automakers and then assist SMEs to develop the solutions to meet these needs. To help boost this industry, NRC will work in close cooperation with Canadian industry and the federal "Automotive Partnership Canada" initiative to support Canadian auto and parts makers in addressing their R&D needs. Global trends have moved towards safe, affordable and environmentally friendly vehicles. NRC will continue industrial research collaborations to develop innovative technologies to create lightweight vehicles, alternative propulsion and cognitive cars. For example, the "Magna-NRC Composite Centre for Excellence" was recently launched in Concord, Ontario. This public-private partnership will focus on the development of the next-generation vehicles by fast-tracking the development of lighter, more durable automotive parts that are safe, affordable, and fuel-efficient. This will bring short and long-term benefits to Canadians such as employment, SME support, technology leadership, and global competitive advantages.
- NRC's Aerospace key sector will continue to increase the global competitiveness of this industry by engaging across NRC to improve the design, manufacture, performance and safety of aerospace vehicles while reducing environmental impacts. NRC works with key stakeholders in industry, academia and government to meet challenges such as rising costs and economic downturns. In 2010-11, NRC Aerospace will continue to support aerospace innovation by providing access to world-class facilities and expertise and strengthening the Canadian supply chain by providing exposure of the competencies of SMEs. NRC will participate in the Air Industries Association Canada Future Major Platforms initiative to develop Canadian competencies for next generation aircraft products and demonstrate those competencies to the global community. Finally, to ensure that Canada is on the

[10] Industry Canada

- The construction industry in Canada constitutes a fundamental economic driver and asset, while presenting one of the single greatest opportunities to reduce Canada's environmental footprint. As Canada's largest employer, the sector accounts for 12% of Canada's Gross Domestic Product (GDP), with annual investments of more than $146 billion in capital expenditures[11]. The sector also utilizes 35-40% of produced energy and more than 50% of Canada's primary resources, while generating 25% of its solid waste and 30% of greenhouse gas emissions. The substantive challenge for this industry is to transition the sector into the knowledge-based economy. To enable this transition and advance sector competitiveness, NRC's Construction key sector will work to: develop the knowledge and technologies essential for the creation of a quality and cost-effective built environment; provide integrated, decision-making tools that enable the construction sector to respond to changing performance expectations; and, develop construction process technologies critical to improved productivity. Specific plans for 2010-11 include developing:
  - The framework for performance assessment/management of Canada's core public infrastructure;
  - Integrated performance assessment of building envelope systems, focusing on energy and moisture management and changing climatic factors;
  - Innovative sensors and sensor networks linked to decision-support tools, for the management of indoor air quality and increased energy efficiency of indoor environments as part of a cross NRC collaborative initiative;
  - Prefabrication, modularization and preassembly of building systems and components, for increased construction productivity and efficiency; and
  - Model energy codes for buildings/houses, reflecting the current market and environmental context.

Benefits to Canadians: The Canadian manufacturing industry employs 2 million or 12% of Canadians in jobs, which pay 25% above national average[12]. This is the single largest business sector in Canada; it directly accounts for 21% of Canada's economic activity. However, from 2004 to 2008, Canada lost 322,000 manufacturing jobs, representing a decline of 14%[13]. This decrease in employment is a common trend in Organisation for Economic Co-operation and Development (OECD) countries as governments struggle to mitigate the long-term structural change of industries. It is expected that the structural change will not solely result in the replacement of manufacturing with value added services, but that Canadian manufacturers will be operating in a more globalized world, increasing their need for a competitive advantage. NRC's plans and priorities under this Program Activity allow Canadian industry to enhance its competitiveness through initiatives in targeted areas of research, which will have the greatest economic impact for our country. Canadian firms are seeking market-oriented innovations but have limited capacity to invest in R&D. Further, Canada's SMEs have limited national or international outreach. NRC's nationwide capability allows it to conduct research that not only meets this need, but also provides opportunities for even further innovation by Canadian industry. The plans above will allow NRC to further contribute to the competitiveness of Canadian industry by enabling the innovation system to create compelling market solutions.

- NRC Aerospace sector will play a significant role in strengthening the industry's lower-tier suppliers and other key players. This initiative will also ensure that the industry is at the leading edge of environmental technology application and design.
- There are over 1 million Canadians working in construction, manufacturing building products, engineering and architecture. The industry, however, is fragmented, as the average construction firm is small. Consequently, less than 0.1% of all construction revenue is reinvested in R&D. NRC Construction will help target and assess risks associated with the introduction of new materials and technologies.

[11] Statistics Canada
[12] Statistics Canada
[13] Canadian Manufacturers & Exporters Association

- NRC Manufacturing and Materials Initiative & NRC Automotive key sector will continue to address economic, environment and regulatory pressure of key industries for sustained competitiveness.
- NRC Manufacturing & Materials research will continue to provide specialized technical expertise in the areas of design and fabrication of mechanical prototypes for NRC research and industry initiatives.

2.1.2 Program Activity – Information and Communications Technologies (ICT) and Emerging Technologies

Description: In support of the federal S&T Strategy, this Program mobilizes and partners with key university, government and private sector players and forms major research collaborations to develop integrated research solutions in the areas of information and communications technologies and emerging technologies for the economic benefit of industrial sectors and Canadians generally. Areas of research focus include photonics, molecular science, information technology and enabling sustainable development.

Program Activity Expected Result: Advancements in innovative technology solutions in emerging and ICT sectors

Performance Indicator(s)	Target(s)
Revenue from service contracts and successful Intellectual Property (IP) transferred to emerging industry sectors	$1.5M by March 2011
Percentage of cli[illegible]eporting positively on the impact of NRC R&D on client growth	85% by March 2012

Financial Resources[14] ($ millions)		
2010-11	**2011-12**	**2012-13**
44.8	42.5	41.9

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
363	337	330

Planning Highlights: Globally, information and communications technologies change at an astonishing pace. NRC is keeping Canada competitive in the information revolution by developing IT systems and hardware, finding new ways to use the technology in a variety of applications and supporting innovation that will benefit Canadians. By supporting industry and the advancement of innovative technology solutions in emerging and ICT sectors, this Program Activity contributes to the achievement of NRC's operational priority 1 and NRC's Strategic Outcome 1.

The ICT and Emerging Technologies Program Activity aims to strengthen Canadian leadership in ICT, molecular and nanotechnologies, enablers that are pervasive in today's society, underpinning everything from research applications to "smart" consumer products. NRC will build new relationships with stakeholders in this sector, anticipate the needs of Canadian industry and respond to industrial imperatives by building competencies to develop next-generation technologies.

- The NRC ICT sector has the capability to convert research outputs into tangible devices or prototypes that industrial partners can see working and envisage manufacturing. As a way of leveraging competencies from across Program Activities at NRC, the organization will continue to work on a platform project to develop a sensor network to monitor air quality in commercial buildings, which will deliver a demonstration in 2011. Furthermore, NRC will collaborate with Health Canada and the Communications Research Centre to test and characterize new NRC prototypes. In collaboration with Carleton University, NRC has engineered a prototype radon sensor network that has the potential to be a low cost, rapid response, mass-marketed system. This prototype will be tested with Health Canada, and a commercialization plan to transfer the technology to industrial receptors will be developed.

[14] Due to the cross-functional nature of this Program Activity, planned resources do not reflect other activities occurring across NRC that contribute to expected results.

- NRC Nanotechnology research is carried out in 13 research institutes across Canada, including NRC-NINT, the National Institute for Nanotechnology, which spearheads efforts in this emerging area. Nanotechnology solutions will enable new products, new processes and new materials in all industrial sectors; NRC will focus its efforts in ICT as well as energy, the environment and metrology to enable the manufacturing of nano-based products. In order to leverage the nanotechnology capabilities throughout the organization, NRC has launched a number of projects that bring together expertise from academia, industry and across NRC to ensure early results. The initiative between NRC, Natural Sciences and Engineering Research Council and Business Development Bank of Canada (NRC-NSERC-BDC) is now in its second year; NRC will continue to monitor progress, completing mid-term reviews for all projects. Results are expected in biosensors, photovoltaics, polymer nanocomposites and quantum computing.
- NRC's IT & e-Business Cluster in Fredericton and Moncton will continue to conduct scientific research, develop technology and support innovation with the aim of having a strong impact on the Canadian ICT sector. The cluster will focus on health and advanced learning technologies as key areas for their client base. One initiative targets the future effectiveness of health services, which rely increasingly on information technologies: the Text Mining of Medical Records project will improve onsite services to patients in health care facilities.
- At the development end of the spectrum, the NRC's Canadian Photonics Fabrication Centre (NRC-CPFC), a partnership among NRC, the Province of Ontario and Carleton University, will continue to provide commercial grade photonic device prototypes to industrial and university clients. A highly active member of the Ottawa photonics cluster, NRC-CPFC fosters the creation of a dynamic environment to stimulate the emergence of new firms, the creation of jobs and the growth of investment. NRC-CPFC will add to its suite of fabrication services and will test new generation fabrication tools to keep its clients at the leading edge of nanofabrication techniques as well as to train HQP. By 2012, the activities of this photonics cluster will deliver novel applications in the ICT, biomedical/health, energy, security and environmental sectors leading to marked economic development in the region and for Canada.

Benefits to Canadians: ICT and emerging technologies are enablers that will have impacts on a wide range of applications. NRC's projects in emerging technologies are engaging industrial partners early in order to assure receptor capacity for the technologies under development. This technology transfer will in turn allow Canadian industry to access windows of opportunity for new technologies underpinned by appropriate metrology, permitting Canadian industry to access future and emerging global markets. By focusing on energy, the environment and ICT, NRC is also helping to create solutions in areas of major importance to Canadians, including the monitoring of air quality and clean sources of energy. Developments in nanotechnology are predicted to be the next revolution in manufacturing. Nanotechnology investments globally exceed $10 billion annually and the nanotechnology-enabled economy is forecasted to exceed $1 trillion by 2015[15]. NRC invested early in this transformational technology and continues to play a key role to ensure that Canada will continue to benefit from nano-enabled advances.

2.1.3 Program Activity – Industrial Research Assistance

Description: This program provides a range of technical and business-oriented advisory services, as well as financial support for small and medium-sized (SME) Canadian businesses engaged in research and development of technological innovations. The program is important for enabling enterprises to generate significant economic activity for Canadian industry by augmenting the capacity and capability of enterprises to innovate and commercialize. Financial support is provided through a transfer payment program delivered by a cross-Canada network of more than 250 professionals, including over 230 Industrial Technology Advisors (ITAs), and located in approximately 100 communities. The field staff of professionals, recognized for their scientific, technical, engineering, business expertise, and knowledge of SMEs, provides clients with customized value-added advice, information, referrals and financial assistance. They work with clients at all stages of the innovation–commercialization continuum, including: project development; access to technical assistance, financial, business, marketing or management advice; access

[15] National Science Foundation

to competitive technical information; patent searches; and access to local, regional, national or international linkages. NRC-IRAP Innovation Network Advisors (INAs) represent and promote NRC-IRAP in the community innovation system and build effective regional innovation system relationships for the benefit of SMEs. This includes working with organizations that receive NRC-IRAP contributions as well as with other organizations to facilitate the implementation of multi-sector, multi-partner initiatives that are relevant to SMEs regionally and nationally. As well, the program supports the placement of graduates in SMEs through its participation in the delivery of Human Resources and Skills Development Canada's Youth Employment Strategy (YES).

Program Activity Expected Result: SMEs in Canada have merit-based access to effective and efficient innovation support resulting in increased wealth	
Performance Indicator(s)	**Target(s)**
Return on investment to the Canadian economy (X:1) as a measure of NRC's effectiveness and efficiency	7 by March 2013
Number of firms assisted	510 by March 2011
Number of graduates placed	166 by March 2011

Financial Resources ($ millions)		
2010-11	**2011-12**	**2012-13**
137.6[16]	134.7	134.0

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
467	435	426

Planning Highlights: For more than 60 years, NRC's Industrial Research Assistance Program has adapted and redefined itself to meet the needs of Canadian SMEs. With a broad suite of services, NRC is able to customize its offerings to meet the immediate and emerging needs of the SMEs today and help them prepare for the future. By providing SMEs in Canada with merit-based access to innovation support resulting in increased wealth, the Industrial Research Assistance Program Activity contributes to the achievement of NRC's operational priority 1 and NRC's Strategic Outcome 1.

In 2010-11, this Program Activity will focus on:

- Improving the innovation capacity-building support to SMEs: NRC will ensure that firms continue to benefit from the Program's financial and non-financial support. Efforts will continue to increase SME access to needed services and continue to build effective regional/community innovation system relationships and services that benefit all SMEs. This will be facilitated through such structures and actions as advisory services, including financial assistance when warranted, investment in NRC's Regional Technology Cluster initiatives, and collaborations with other programs, organizations, and levels of government.
- Helping industry manage risks as new products are developed and marketed and as new processes and practices are integrated into their operations: In addition to the risk sharing that the Program undertakes through its financial support of Canadian firms' technology projects, NRC will continue collaborating with industry in a number of other ways to reduce or manage the risk in developing new products and processes. These include arming the firms with tailored market intelligence before they embark on the adoption, adaptation or development of new technologies or process, and helping SMEs become "investment ready".
- Extending NRC's reach to more clients: In stable economic times, SMEs need linkages to sources of assistance, technical and business advisory services and financial support. In the current turbulent economy, that need is even greater. As SME needs and demand for NRC-IRAP services and financial support continue to grow, NRC's ability to respond to SME requests for assistance diminishes. As a result, in 2009-10 and 2010-11, NRC will expend an additional $200 million of contributions allocated in Budget 2009 plus Community Adjustment Funding and Federal Economic Development Agency for

[16] Does not include stimulus funding for NRC-IRAP from Canada's Economic Action Plan (details provided in Section 2.3).

Southern Ontario Funding to expand its initiatives for SMEs (details on Canada's Economic Action Plan are provided in Section 2.3).

Benefits to Canadians: This Program Activity supports the Government of Canada priorities to position Canada in the leading group of innovating countries. NRC provides business and technical advisory services and financial support to SMEs to help them build their innovation capacity in the competitive, global knowledge economy. Through contributions to organizations that provide innovation assistance services to SMEs, NRC also plays a role in bringing together diverse players and more than 100 of Canada's leading public and private research and technology based organizations in the Canadian innovation system for the benefit of SMEs. Since SMEs in Canada account for 98 percent of businesses and employ one in every six Canadians, their success is critical for Canada's future growth.

2.1.4 Program Activity – Health and Life Sciences Technologies

Description: In support of the federal S&T Strategy, this Program mobilizes and partners with key university, government and private sector players, and forms major research collaborations to develop integrated research solutions for complex health and related life science issues for the benefit of Canadians. Areas of research focus include age-related and infectious diseases, human health and wellness, and the prevention, early diagnosis and improved treatment of diseases such as cancer.

Program Activity Expected Result: Canadian health and life science industries have greater access to effective and innovative technology solutions	
Performance Indicator(s)	**Target(s)**
Revenue from successful IP transferred to Health & Life Science industries	$5M by March 2012
Percentage of respondents from the health and life science industrial collaborators who respond positively on value of NRC innovative contributions	85% by March 2012

Financial Resources ($ millions)		
2010-11	**2011-12**	**2012-13**
102.3	105.1	104.4

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
675	681	673

Planning Highlights: NRC is co-leading and partnering with other government departments, industry and universities – combining strengths and capacities through a multidisciplinary approach – to build the critical mass needed to address substantial and enduring issues of national importance in Health to support the federal priority of "Health and Related Life Sciences Technologies". By providing Canadian health and life science industries with greater access to effective and innovative technology solutions, this Program Activity is contributing to the achievement of NRC's operational priority 2 and NRC's Strategic Outcome 1.

The Health and Life Science Technologies Program Activity will continue to focus its efforts on R&D related to the diagnosis, treatment and prevention of cancer, cardiovascular, neurological and infectious diseases. Increased emphasis will be placed on the development of integrated technological solutions for medical conditions facing our aging population. By bringing together competencies in marine-based bioproducts, neurosciences, glycosciences, immunomodulaton, bacterial pathogenesis, antibody engineering, genomics, proteomics, combinatorial chemistry, structural biology and bioinformatics with strengths in engineering and the physical sciences, NRC will develop innovative and integrated approaches for the diagnosis, prevention and treatment of human disease. Furthermore, the impact of climate change; productivity; health and safety; and regulatory issues related to genetically-modified and novel plants are some of the key challenges facing Canada's agriculture industry. NRC has a strong Agriculture key sector under this Program Activity that will work with partners in industry, government and academia to achieve competitiveness and increase the value of Canada's agriculture output.

Knowledge and technology developed from this Program Activity will be commercially exploited to ensure a positive impact on the health and wellness of Canadians, to help reduce costs associated with health care, and to develop a thriving Canadian health-care and agricultural industry.

- Through NRC's tripartite relationship with Agriculture and Agri-Food Canada (AAFC) and the University of Prince Edward Island, NRC will continue to deliver on its Charlottetown Technology Cluster objectives of finding functional food and nutraceutical-based solutions for health and wellness challenges facing our aging population in neurological, metabolic, and immune health. NRC's aim is to have a positive impact on the health of Canadians, while at the same time help Canadian companies seize larger opportunities in the nearly $300-billion global market for nutrition-related products.
- NRC Medical Devices Initiative will continue work on a virtual reality system for surgical oncology, which will reduce risks for complex surgery cases and help train new surgeons more rapidly and thereby reduce health care costs. Using its expertise in magnetic resonance, medical photonics, biosensors, and IT-based decision support systems NRC will continue to develop new instrumental techniques and associated software for minimally invasive medical diagnosis, transfer these techniques into clinical use, and be a major driving force in the Canadian medical device sector. Additionally, working with Canadian Institutes of Health Research (CIHR) and NSERC, NRC will create a Medical Device Collaboration Research Program, aligned with the federal S&T Strategy, which brings together existing expertise from universities, hospitals, industry, and NRC from across the country to generate large-scale (critical mass) projects, which can spur the development and commercial exploitation of medical devices, thus impacting positively on the Canadian economy and the health and wellness of Canadians.
- In Winnipeg, NRC's Biomedical Cluster activity will focus on accelerating biomedical technology commercialization and helping the community develop into a highly productive Canadian centre of biomedical device technology. NRC will create a supportive business environment with the infrastructure, organizational and human resources needed to sustain internationally competitive ventures. NRC is also working with Halifax in the areas of neuroscience and biomedical imaging. Over the next few years, NRC will seek partnerships with other technology clusters in translational neuroscience and develop R&D collaborations with them; harness its internal existing geographic network to exploit competitive advantage for Canada; and attract medical device companies to Halifax so as to establish the area as a critical global node, with a well-branded identity in connecting brain research to diagnostics in the clinic.
- NRC's activities in BioPharma will focus on new initiatives, which answer the needs of the Canadian biopharmaceutical industry as well as align with the country's priorities in health and economic development. Specifically, NRC will develop a biotherapeutic engineering and production platform that will enhance therapeutic performance and reduce production costs; a theranostic / companion diagnostic platform which will speed drug development in crucial pre-clinical and clinical phases; and a lead assessment and acceleration project that provides core facilities to assist SMEs and university technology transfer programs in the pharmacological assessment of their therapeutic leads. Such initiatives will help address the two most critical challenges facing Canadian biopharmaceutical companies: a) the lack of access to key platform technologies, and b) the lack of access to risk capital for drug discovery by de-risking early stage discoveries and improving the viability and valuation of therapeutic leads.
- NRC Agriculture key sector will use its unique multidisciplinary capabilities in genomics and technology platforms, over the next five years, to work to double the average gain in productivity of targeted crops such as canola, flax, and other pulse crops. NRC will work collaboratively to create commodity-crop consortia to direct R&D links to crop-based value chains and provide the technology platform support required to increase yield, reduce input cost and adapt to climate/environmental stress. To help ensure the diversification of the sector, NRC will focus its efforts on functional foods and nutraceuticals, industrial oils, cosmeceuticals, pharmaceuticals, vaccines, and environmentally friendly products for some of Canada's key industrial sectors, all derived from agricultural sources. Through its regional technology cluster in Saskatoon, NRC will foster and support research-commercial linkages and deliver hands-on services that will allow Canadian industry to develop innovative plant-derived products.

Benefits to Canadians: NRC's Health and Life Science Program Activity focuses on the health of Canadians, one of the top priorities for NRC and for Canada. As our population ages, and health care costs increase, it will become an even more critical issue. NRC's leading research and integrated technological solutions will help prevent, diagnose, and treat both chronic and infectious diseases. At the same time, NRC supports key industrial activities in the biopharmaceutical, medical device, agricultural, functional foods, and bioproducts sectors. In 2007, Canada's bio-based economy was valued at ~$79 billion-equivalent to 6.4% of our total GDP – and provided employment for more than 103,000 Canadians[17]. The biopharmaceutical component in particular, is one of the most R&D intensive in Canada, employing highly skilled workers who earn almost twice the average Canadian salary. NRC's expertise and infrastructure will continue to contribute to the development and growth of Canada's bio-economy, today and into the future.

2.1.5 Program Activity – Energy and Environmental Technologies

Description: This Program is carried out in partnership with other government departments, universities and industry and brings together the knowledge and expertise needed to make an impact on areas of critical importance to Canada in environmental and sustainable energy. The challenge is to reduce energy consumption while developing clean, sustainable energy alternatives. NRC is working to help alleviate the environmental impacts of activity in the energy, resources, transportation, construction and agri-food industry sectors. NRC performs R&D to develop processes and technologies for environmentally responsible manufacturing.

Program Activity Expected Result: Collaborative contributions on improving sustainability of Canada's natural resources and protection of Canada's environment through innovation

Performance Indicator(s)	Target(s)
Percentage of responding collaborators who respond positively on the value of NRC contributions to natural research sustainability and environmental protection innovations	85% by March 2012

Financial Resources[18] ($ millions)		
2010-11	**2011-12**	**2012-13**
28.2	27.1	26.8

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
216	204	201

Planning Highlights: NRC is co-leading and partnering with other government departments, industry and universities – combining strengths and capacities through a multidisciplinary approach – to build the critical mass needed to address substantial and enduring issues of national importance and to support federal priorities within "Natural Resources and Energy" and "Environmental Science and Technologies". By building S&T capacity, creating new opportunities in environment and energy-related sciences and accelerating commercialization through NRC technology clusters, this Program Activity contributes to the achievement of NRC's operational priority 2 and NRC's Strategic Outcome 1.

The Energy and Environmental Technologies Program Activity will continue to focus on developing technologies that will address substantial issues such as water scarcity; treating contaminated effluents; effective waste management; the battle against global warming; eco-efficiency; and the need for alternate energy sources. Additional opportunities for multidisciplinary approaches to challenges important for Canada in this Program will be identified early in 2010.

- Water will become a limiting resource in the 21st century and NRC is at the forefront of R&D in assessing and addressing water quality and quantity issues. NRC utilizes an array of technologies such as biosensors, trace-level analytical chemistry and advanced numerical modelling to analyze water,

[17] Pellerin William. Measuring Canada's Bio-Based Economy, BIOTECanada, Fall 2008.

[18] Due to the cross-functional nature of this Program Activity, planned resources do not reflect other activities occurring across NRC that contribute to expected results.

assess water levels and availability, and to develop appropriate treatment systems. NRC will continue developing these technologies in 2010-11 to contribute to solutions in preventing pollution, water use strategies and testing of groundwater, which is the major source of drinking water for Canadians.

- NRC's other environmental technologies will concentrate on monitoring air quality, bioremediation to restore contaminated industrial sites, and sustainable industrial process development to reduce energy and primary material consumption while at the same time limit waste production, pollution, and greenhouse gas emissions. Monitoring air quality is an important issue for Canadians. By detecting and measuring carbon nanoparticles in the atmosphere, the research will assist industry to meet stricter regulations on pollutant emissions and support policymakers and regulators in the development of future standards. NRC will collaborate with Environment Canada and Health Canada within the frame of the federal "Clean Air Agenda" and continue research in the Indoor Air Research Laboratory. A new collaborative project with the Québec National Public Health Institute will focus on indoor air quality and its effects on asthmatic children.
- AAFC, Natural Resources Canada (NRCan) and NRC will continue partnering on the delivery of the National Bioproducts Program (NBP) by collaborating with numerous partners to develop environmentally friendly products for the automotive, aerospace, construction, and plastics industries; to produce chemicals and ethanol from forestry and/or agricultural biomass; to produce energy and chemicals from biomass and municipal waste through anaerobic digestion and gasification; and to produce biofuels from marine algae. The objective of NBP is to produce technologies and products for commercial exploitation within a three to five year period, which will have a net positive impact on the environment and sustainable energy, while at the same time enabling Canadian companies to take advantage of the burgeoning global bioproducts market.
- NRC's Hydrogen and Fuel Cells national initiative is a partnership among NRC, NRCan and NSERC. Fuel Cells are highly efficient energy conversion technologies having twice the efficiency of an internal combustion engine. Primary elements of this initiative are technology development projects, which include the participation of industry, researchers from NRCan and NRC, and university researchers in order to create technology applications with clear deliverables in a three to five year timeframe. The projects focus on two key areas identified by stakeholders: Lower Temperature Solid Oxide Fuel Cells and Advanced Polymer Electrolyte Membrane Fuel Cells. Priorities for 2010-11 are: to improve cost/performance of Fuel Cells for sustained presence in global niche/mass markets (cost reduction targets planned for commercialization in 2015); and to open new markets by integrating Fuel Cells into clean energy systems and to "green" the resource sector through the establishment of a new value chain consortium.
- Another strategic priority area for Canada is natural resources development in the Arctic, particularly oil and gas reserves. NRC technology development projects for Arctic and harsh climate regions will continue to be conducted in partnership with major oil and shipping companies, NRCan, and Transport Canada. NRC will work on advancing safe and effective operations in Canada's Arctic and marine environments by developing innovative technology to protect floating oil and gas drilling platforms from drifting sea ice, allowing them to work in progressively deeper water in the Beaufort Sea while protecting the environment. In 2010-11, NRC will continue to make the Arctic a safer working environment by developing improved regulations for ships operating in the Arctic, enhancing ship designs for ice-going vessels, and testing new escape, evacuation and rescue techniques, including lifeboats and immersion suits, for Arctic conditions.

Benefits to Canadians: This Program Activity addresses challenges our country faces: clean water, clean air, healthy soil, healthy oceans, sustainable energy and environmentally friendly technologies for industrial processing and for extracting natural resources, particularly those that are located in Canada's arctic. Developing and commercializing technologies in these areas will help Canadian companies to compete successfully in growing global markets. It will further help Canadians in their quest to deal with the challenges of climate change, and to seize economic opportunities emerging from the changes. The development of clean energy alternatives will not only open new market opportunities but will also have an effect on human health and on the environment for the benefit of future generations, but also may lead to leaner, more efficient industries which will provide economic benefits to Canada.

2.2 NRC Strategic Outcome 2

Canadians have access to research and development information and infrastructure

NRC plays a vital role in Canada's innovation system by providing, maintaining, and advancing critical national infrastructure that underpins innovation. Through NRC, Canadian firms can access an array of national facilities and programs designed to help them conduct fundamental research as well as take new products and technology innovations to market. Programs conduct R&D for ongoing advancement of leading-edge infrastructure and provide access to scientific and medical information, a fundamental requirement for achieving an innovative and knowledge-based economy. As mandated by the *National Research Council Act*, this program provides access to astronomical observatories in addition to maintaining measurement standards in support of domestic and international trade.

For a list of performance indicators for Strategic Outcome 2, please refer to Section 1.2.3.

2.2.1 Program Activity – National Science and Technology Infrastructure

Description: This Program manages national science and engineering facilities for Canadian scientific and technological communities. Facilities include astronomical observatories, the laboratory for national measurement standards, the TRIUMF sub-atomic research facility, and a suite of neutron-scattering spectrometers at Chalk River Laboratories.

Program Activity Expected Result: Canada's national science and technology facilities are up-to-date and accessible to Canadians in accordance with federally legislated and assigned mandate and/or evolving national needs

Performance Indicator(s)	Target(s)
Percentage of surveyed clients reporting positively on their perceived value of NRC R&D infrastructure used	85% by March 2012
Number of Canadian users of major NRC science infrastructure	1,200 by March 2012

Financial Resources ($ millions)		
2010-11	**2011-12**	**2012-13**
49.7	47.6	47.2

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
277	260	255

Planning Highlights: NRC provides critical S&T infrastructure to support Canadian excellence in R&D, for today and into the future (e.g., facilities, equipment, scientific and technical information, and more). Beyond supporting industry S&T through its current efforts within key industrial sectors and communities, NRC plays a role in ensuring that Canada looks ahead to develop and put in place the technology platforms that will provide our country with the necessary innovative capacity for remaining leading-edge and providing continued leadership on the future global R&D stage. NRC will continue to work with academic, industry and government partners in Canadian communities to ensure that national S&T facilities remain up-to-date and accessible to Canadians in accordance with federally legislated and assigned mandate and/or evolving national needs. Such work and expected results will contribute to the achievement of NRC's operational priority 3 and NRC's Strategic Outcome 2.

- NRC will meet the current and future needs of Canadians in the areas of primary measurement standards and calibration and measurement capabilities through its mandated National Measurement Standards initiative. This national source determines the standards and methods of measurement that impact directly on the ability of Canadian firms to trade internationally. NRC will work with other Program Activities on emerging technologies such as nanotechnology. Robust manufacturing practices coupled with the necessary standards and measurement infrastructure will deliver economic impacts as industry begins to bring the first nanotechnology-enabled products to the global marketplace. NRC will continue to support Canada's national and global trade interests by

strengthening participation in international metrology activities, with emphasis on the development of standards for emerging technologies.

- As part of NRC's mandate "to operate and administer any astronomical observatories established or maintained by the Government of Canada", NRC's Canadian Astronomical Observatories initiative provides access to primary international state-of-the-art telescopes for Canadian scientists, as well as to astronomical data that is collected and distributed by NRC's Canadian Astronomy Data Centre. Canadian participation in these facilities was determined by Canada's Long Range Plan for Astronomy (LRP) of 2000, an effort by Canada's astronomy community which established priority initiatives over a decade, with an outlook to 2015. Next generation observatories under the LRP include the Atacama Large Millimetre Array (ALMA), an array of 62 sub-millimetre antennas; the Thirty Metre Telescope (TMT), a very large ground-based optical-infrared telescope; and the Square Kilometre Array (SKA), a next-generation radio telescope array. Full operations at ALMA will be launched in 2011 bringing to bear a suite of new technologies developed by international partners with strong Canadian participation. With respect to the TMT and SKA projects, NRC will work with federal partners and stakeholders to confirm plans going forward. As part of an increasing trend, NRC will continue to perform technology development for existing and future observatories, creating leading-edge instrumentation in collaboration with Canadian industrial partners.
- The Facility for Sub-Atomic Research (TRIUMF) is Canada's national laboratory for nuclear and particle physics, and one of Canada's key investments in large-scale research infrastructure. NRC plays an important oversight and stewardship role, providing funds to the facility on behalf of the government via a contribution agreement. TRIUMF has five-year funding of $222 million for the 2005-10 period. TRIUMF is currently seeking renewed funding for its new plan, covering the period 2010-15.
- For the safety and protection of all Canadians, NRC plays a national leadership role in the development of model building and fire codes and guides of practice to support technical standards and facilitate a uniform and nationally integrated code development process. By building on traditional code objectives of health and safety, accessibility, and protection of buildings from fire and structural damage, NRC will take new directions in research in the areas of water and energy use efficiency. To this end, NRC and NRCan have joined forces to update the Model National Energy Code for Buildings. Furthermore, in a parallel process, the Model National Energy Code for Houses will also be updated, providing for the design of energy-efficient housing that minimizes energy use in relation to overall building costs.
- NRC Canadian Neutron Beam Centre (CNBC), is a unique facility in Canada, enabling neutron beam experiments for the development of advanced materials to be undertaken on behalf of universities, industry and government researchers across Canada and internationally. The Centre is one of about twenty similar neutron scattering facilities worldwide and a key part of Canada's science infrastructure. NRC-CNBC will provide support to over 50 departments from 20 universities and to over 100 foreign institutions each year, training HQP from across Canada. NRC-CNBC is dependent on the National Research Universal Reactor (NRU) at Chalk River in order to deliver its services. Given the shutdown of the reactor for essential repairs, NRC will be exploring alternative modes of delivery. Both long-term and short-term solutions will be examined.

Benefits to Canadians: Canada is amongst the global leaders in areas such as metrology, building codes and standards, astronomy, and sub-atomic research. The plans and priorities under this Program Activity enable Canada to contribute to long-term competitiveness and participate with international thought-leaders. NRC conducts world-class R&D that positions Canada on the world stage, not only in terms of excellence but also assists Canadian industry in accessing broader markets and enhancing their expertise. These plans will allow NRC to further contribute to the advancement of Canadian R&D by providing, maintaining and advancing critical national infrastructure and activities that underpin innovation.

- The increasing globalization of trade has made metrology and the establishment of national measurement standards a key element for export-dependent economies such as Canada. NRC plays a vital role in assuring global market access to Canadian industry by reducing non-tariff trade barriers. As emerging technologies begin to be commercialized, metrology and standards will be a key enabler to keep Canada at the cutting-edge of technology and providing SMEs with access to global markets by making possible process control and repeatable results.

- With the support and leadership from the provinces and territories, NRC is updating the model national energy code, last published in 1997. This will reflect today's higher energy prices and construction costs, innovations in building materials, systems and designs, and Canadians' concerns for greenhouse gas emissions. It will also contribute to the development of a single energy standard for buildings, allowing for harmonization among jurisdictions.
- Standard building codes and energy codes lead to safer, healthier and more energy-efficient buildings, which will provide immediate benefit for Canadian residents as well as provide longer term benefits to the global environment through reduction of green-house gases.
- NRC's research in astronomy enables Canada to attract budding innovation and thought leaders to its science programs; provides access to world-class facilities and data for researchers and; creates opportunities for Canadian industry to participate in contracts related to large scale science infrastructure. These benefits are achieved by NRC's participation in world facilities through collaboration with international partners. These international relations enable NRC to play a role in the administration of Canada's interests in several offshore observatories, including the Canada-France-Hawaii Telescope, the James Clerk Maxwell Telescope (1987), the Gemini Observatories (1993) and the Atacama Large Millimetre Array (ALMA, 2003). These projects will create and advance knowledge in astronomy, pushing the limits of fundamental physics, thereby developing HQP. This initiative plays a key role in the development of advanced instrumentation that influences other Canadian sectors.
- TRIUMF provides world-class facilities for researchers across Canada in the areas of subatomic physics, life sciences, nuclear medicine and materials science. Research and development in these areas will contribute to a better quality of life not only for Canadians but for people around the world as technology developed in Canada is made available globally.

2.2.2 Program Activity – Scientific, Technical and Medical Information

Description: This Program operates and maintains the national science library, specifically holding the national collection of Scientific, Technical and Medical (STM) information. The program provides Canada's research and innovation communities with access to global STM information, to facilitate knowledge discovery, cross discipline research, innovation and commercialization.

Program Activity Expected Result: High value information that advances research and innovation in the areas of science, technology and health/medicine	
Performance Indicator(s)	**Target(s)**
Percent access to information services via alternative service delivery mechanisms where feasible	100% by March 2011

Financial Resources ($ millions)		
2010-11	**2011-12**	**2012-13**
39.0	28.1	28.0

Human Resources[19] (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
114	105	105

Planning Highlights: This Program Activity supports NRC's operational priority 3 and NRC's Strategic Outcome 2 by providing access to high-value information and services that advance research and innovation in the areas of science, technology and health/medicine.

The Scientific, Technical and Medical Information Program Activity (NRC Canada Institute for Scientific and Technical Information (NRC-CISTI)) underwent significant changes in 2009-10, including the implementation of new service delivery models for many elements of the program. Plans and priorities for fiscal year 2010-11 will focus on the following areas:

[19] Reflects planned numbers and is not based on an average salary calculation.

- Provide information access and services to NRC, Health Canada and other federal government researchers: This activity provides NRC researchers fast and comprehensive access to the global STM information needed to support their research and innovation activities via several library and information discovery services. The benefits of these services will be extended by partnering with Health Canada to offer the same services to Health Canada researchers. NRC will continue to work with other federal science departments on activities, which will provide equitable access to STM information across the federal government through the efforts of the Federal Science eLibrary.
- Privatize the NRC Research Press: NRC will complete the full transformation of the NRC Research Press from a government entity to a not-for-profit corporation by Dec 31, 2010. For more information, please refer to Transformation of NRC Research Press and Q&A on the Transformation.
- Provide access to the national science library collection: NRC will ensure that access to the national STM collection via an alternate service delivery provider will continue to meet the needs of all Canadians (NRC-CISTI and Infotrieve Collaboration).
- Provide access to the record of Canadian science: NRC will provide long term access to the record of Canadian science and federally funded research outputs through two publicly available services. The NRC Publications Archive (NPArC) will continue to grow as researchers add new content, and as older material is converted for inclusion in the Archive. PubMed Central Canada (PMC Canada), being developed with the CIHR, will continue to be enhanced.

Benefits to Canadians: This Program Activity is critical to ensuring that Canadian researchers and entrepreneurs in all sectors have access to the STM information needed to support their research and innovation activities that are essential to a vibrant Canadian economy. NRC contributes to Canada's S&T Strategy by providing fast and comprehensive access to Canadian and global science in the priority areas of environment, natural resources and energy, health and life sciences, and information and communications technologies. Through services such as NPArC and PMC Canada, NRC also ensures that a record of Canadian science is available for use by current and future generations of Canadian researchers, thus supporting the translation of research into accessible knowledge that industry and other research partners can use.

2.3 Initiatives Funded Through Canada's Economic Action Plan

The Government of Canada recognizes the role that science and technology plays in providing solutions to Canada's economic, social and environmental challenges. That is why Budget 2009, Canada's Economic Action Plan, is designed to provide over $5 billion in new S&T investments, one of the most substantial S&T investments in Canadian history. Through these investments, not only is the government strengthening the economy but it is building the future of Canadian S&T and advancing our national position amongst global innovation leaders. The initiatives funded below will contribute to Canada's long-term competitiveness and improved quality of life for Canadians.

- **Temporary Expansion of the NRC Program Activity, Industrial Research Assistance:** Under this initiative, NRC received a total of $200 million over two years to enable it to temporarily expand its existing initiatives under NRC-IRAP for SMEs. This included $170 million to double the Program's contribution to firms, and $30 million to help companies hire new post-secondary graduates under its Youth Employment Program. Budget 2009 also provided NRC-IRAP with an additional $17.5 million from the Community Adjustment Fund (CAF) and $27.5 million from the new Federal Economic Development Agency for Southern Ontario (FedDev Ontario). Both of these funds are provided to NRC through agreements with Industry Canada to support economic and community development of SMEs in Southern Ontario. For further details on NRC-IRAP plans and priorities please refer to Section 2.1.3.

NRC-IRAP Canada's Economic Action Plan Planned Spending ($ millions)			
2009-10	**2010-11**	**2011-12**	**2012-13**
145.0	100.0	0	0

NRC-IRAP Expected Result through Canada's Economic Action Plan: SMEs in Canada have merit-based access to effective and efficient innovation support resulting in increased wealth	
Performance Indicator(s)	**Target(s)**
Number of firms assisted	1,360 by March 2011
Number of graduates placed	1,000 by March 2011

- **Modernizing Federal Laboratories (MFL) Initiative:** Under this initiative NRC received a total of $19.07 million of infrastructure stimulus, which is being used across Canada to address deferred maintenance issues and to generally modernize facilities that support research in areas of national importance such as health and wellness, sustainable energy, manufacturing, and metrology. Not only will this accelerated investment initiative ensure ongoing integrity of certain facilities but will also make far-reaching contributions to the continuing competitiveness of Canadian S&T infrastructure and the related employment opportunities throughout the country. By the end of March 2011, the MFL initiative at NRC will have successfully delivered over 80 projects located in facilities across Canada.

MFL Canada's Economic Action Plan Planned Spending ($ millions)			
2009-10	**2010-11**	**2011-12**	**2012-13**
8.710	10.360	0	0

Performance Indicator(s)	**Target(s)**
Program completion for FY10-11	Approx. 80 projects by March 2011
Number of jobs created	The benchmark for general construction contracts is comprised of 50% labour and 50% material. Therefore, the $19.07 million in stimulus from 2009-10 to 2010-11 represents approx. 145,000 hours of labour.

- **Accelerated Federal Contaminated Site Action Plan Initiative (FCSAP):** Under this initiative, NRC received $4.84 million of infrastructure stimulus to remediate contaminated areas in an effort to clean up the environment and improve safety. Works associated with this initiative commenced in 2009 and will continue into 2010-11. NRC will expense the majority of this funding on soil remediation projects at sites in Montréal and Penticton. Contamination at the Montréal site is a result of historical land-use as an incinerator site, while the contamination at Penticton site is a result of the historical use of a portion of the property as a landfill site. The balance of the funds will be expensed conducting contaminated site assessment and risk management type work at a site in Montréal, three sites in Ottawa, and a site in Penticton. The selection of these assessment projects is based on results of NRC wide Phase I Environmental Site Assessments conducted in 2008-09. By April 2011, the FCSAP initiative at NRC will have successfully delivered the above remediation projects and will significantly reduce environmental liabilities while reducing any potential harm to the environment and public health.

FCSAP Canada's Economic Action Plan Planned Spending ($ millions)			
2009-10	**2010-11**	**2011-12**	**2012-13**
2.380	2.455	0	0

Performance Indicator(s)	**Target(s)**
Program completion for FY10-11	Approx. 13 projects (assessment, remediation, risk mgmt) by March 2011
Number of jobs created	The type benchmark for soil remediation type construction contracts where soils are removed from a contaminated site is comprised of 20% labour and 80% soil disposal fees. Therefore, the $4.84 million in stimulus from 2009-10 to 2010-11 represents approx. 15,000 hours of labour.

Risk Assessment for Initiatives Funded by Canada's Economic Action Plan

NRC is currently managing the risks associated with the implementation of these initiatives by allocating the necessary in-house resources while engaging the appropriate private sector resources where in-house resources are not available.

- For NRC-IRAP, the risk to achieving expected results lays with the ongoing capacity of the field delivery staff. The field staff are handling a significant increase in workload over the two years of stimulus funding. To mitigate the risk, NRC-IRAP will readjust resources to expand staff capacity.
- To manage the risk of capacity and capability to deliver on the MFL program, projects identified and funded under the program receive first priority in terms of resource allocation. Resources of the local architectural and engineering consulting community are used to augment in-house staff where necessary. In addition, experienced asset management staff oversee all projects.
- To manage the potential risk of constrained resources, NRC may re-profile existing funding under the Accelerated FCSAP initiative to maximize the benefit of existing works or to address new works that qualify under the initiative, however NRC fully anticipates successful implementation of this initiative.

2.4 Internal Services

Description: Internal Services (IS) are groups of related activities and resources that are administered to support the needs of programs and other corporate obligations of an organization. These groups are: Management and Oversight; Communications Services; Legal Services; Human Resources Management Services; Financial Management Services; Information Management Services; Information Technology Services; Real Property Services; Materiel Services; Acquisition Services; and Travel and Other Administrative Services. IS include only those activities and resources that apply across an organization and not to those provided specifically to a program.

Financial Resources ($ millions)		
2010-11	**2011-12**	**2012-13**
119.5[20]	114.1	114.0

Human Resources (Full-time Equivalents)		
2010-11	**2011-12**	**2012-13**
711	684	682

Planning Highlights:

Governance and Management Support

- Integrated Governance Structures and Processes: NRC will continue to strengthen its governance processes such as to more clearly define the role of NRC Council as a challenge to management decisions and to do so in a manner that is aligned with the annual reporting and planning process and operational decisions.
- Integrated Planning and Performance Management: NRC will complete the new integrated planning, performance management and reporting process in 2010. NRC will exercise an automated Business Intelligence (BI) information management system accessible across the organization for both financial and performance data gathering and reporting.
- Integrated Business and Client Services: NRC will continue to support business activities by providing tools and processes that will make it easier for activities to collaborate with each other and with their external clients.
- Integrated Communications, Marketing, and Branding: NRC will develop and begin implementation of an organizational communication plan that will shape many corporate level communications initiatives and activities. New marketing activities and business to business advertising, coordinated stakeholder outreach, a more integrated communications approach across NRC will all serve to better support NRC's priorities, and more effectively communicate NRC's impact to Canadians.

[20] Does not include infrastructure stimulus funding from Canada's Economic Action Plan (details provided in Section 2.3).

Resource Management Services

- Integrated Human Resource Management: NRC will focus on attracting and engaging talent, building organizational capability and driving innovation. NRC will use a newly defined tool to assess leadership bench-strength, and use the results as a critical input to improving succession management at NRC.
- Financial Management: NRC will continue to focus on facilitating greater alignment between planning and achieving priorities. A priority for the next fiscal year will be improved reporting through customized and adhoc Business Intelligence financial reports.
- Investment Planning: A Project Management Office (PMO) has been established to transition NRC from the *Long Term Capital Plan* to the *Policy on Investment Planning – Assets and Acquired Services and the Policy on the Management of Projects*. NRC will draft an Investment Plan and Treasury Board Submission in FY 2010/11 for approval by 31 March 2011. Note that NRC will not have a plan for 2010-11, but will function within the context of existing governance structures and will consult with Treasury Board Secretariat (TBS) on investments as required.
- Information Management and Information Technology (IM/IT): NRC will evolve IM/IT delivery in a systematic manner, starting with foundational services such as IT Security. The establishment and operation of a steering committee and a series of working groups will strengthen the alignment between IT, NRC business/ research requirements and TBS policy requirement on management of IT.

Asset Management Services

- Real Property: NRC plans to expand its capacity to monitor and manage its real property portfolio through continued investment in property management software. Work will continue to incorporate all facilities located across Canada into an electronic format to allow NRC to manage, monitor and report on its real property portfolio in an accurate, consistent and timely manner.
- Acquisition and Material Management: NRC's plans include implementing a Contract Review Committee, Procurement Planning and Green Procurement. The Procurement and Material Management Policy Manual will also be modified and made available to NRC staff requiring access to enable NRC to comply with regulations and standards.

Section III – Supplementary Information

3.1 List of Tables

The following tables are located on the Treasury Board Secretariat website at www.tbs-sct.gc.ca/rpp/2009-2010/info/info-eng.asp:

- Details on Transfer Payment Programs (TPPs)
- Green Procurement
- Horizontal Initiatives
- Upcoming Internal Audits and Evaluations over the next three fiscal years
- Sources of Respendable and Non-Respendable Revenue
- Summary of Capital Spending by Program Activity

3.2 Other Items of Interest

NRC Council Members provide strategic direction and advice to the President and monitors progress against strategic plans. The Minister of Industry can also consult the NRC Council for advice on matters affecting NRC and of importance to science and technology in Canada. It usually meets three times a year and has three standing committees: the Executive Committee, the Human Resources Committee, and the Finance Committee. The Council is chaired by the NRC President and the other members are appointed by the Government of Canada for three-year terms. Current members are:

Pierre Coulombe, President (and Chair of Council), National Research Council, Ottawa, Ontario

- Dennis Anderson, Management Consultant, Libau, Manitoba
- Jacques Beauvais, Vice Provost of Research, Université de Sherbrooke, Sherbrooke, Québec
- Paul Clark, Former Vice-President, Research and Technology, NOVA Chemicals Corporation, Calgary, Alberta
- Peter Frise, Scientific Director and CEO, Auto 21, University of Windsor, Windsor, Ontario
- John Harker, President, Cape Breton University, Sydney, Nova Scotia
- Alexandre Jodoin, Materials and Structures Engineer, BMT Fleet Technology Limited, Manotick, Ontario
- Jay Josefo, Lawyer, Toronto, Ontario
- Raymond Leduc, Director and Senior Location Executive, IBM Bromont, Bromont, Québec
- Margaret Lefebvre, Executive Director, Canadian Association of Income Funds, Montréal, Québec
- Kellie Leitch, Assistant Dean (External), Chief/Chair of Paediatric Surgery and Assistant Professor, Paediatric Orthopaedics, University of Western Ontario, London, Ontario
- Douglas MacArthur, President, MacArthur Group, Inc., Charlottetown, Prince Edward Island
- Eva Mah Borsato, President, Intellectual Capital Corporation Inc., Edmonton, Alberta
- Cecil H. Rorabeck, Professor of Surgery, University of Western Ontario, London, Ontario
- Leo Steven, Former President and Chief Executive Officer, Sunnybrook Health Sciences Centre, Cardigan, Prince Edward Island
- Howard Tennant, President Emeritus, University of Lethbridge, Lethbridge, Alberta
- Normand Tremblay, Strategic Management Consultant, Normand Tremblay and Associates, Montréal, Québec
- Allan Warrack, Professor of Business Emeritus, University of Alberta, Edmonton, Alberta
- David Wood, Head of Finance and Corporate Development, Secretary and Treasurer, Celator Pharmaceuticals Inc., Vancouver, British Columbia